

## EEC Backward Design Lesson Plan

Teacher: Chelsey Puskaritz

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Content Area(s) Science (animals/biomes)

Grade Level 3<sup>rd</sup> Grade

### Step 1 – Desired Results (what I want students to learn)

#### A. Overview:

- In this unit, the students will follow the WebQuest to create a section of a zoo based on the characteristics of the seven biomes of the world (desert, temperate forest, ocean, tundra, prairie, tropical rainforest, and wetlands). The unit in its entirety will take about 6 weeks (the more available computer time, the less time it would take). The students will research the biome, animals found in the biome and basic survival characteristics of those animals. They will decide the best way to set up the zoo plot and answer the essential question of “Is it better for animals to live in the zoo or in the wild?” When finished, the student scientist groups will create a complete zoo design.

#### B. Pennsylvania State Standards:

- **Reading/Writing Standards:**
  - ⇒ 1.4.3.C Write an opinion and support it with facts.
  - ⇒ 1.5.3.A Write with a sharp distinct, focus identifying topic, task and audience.
  - ⇒ 1.6.3.E Participate in small and large group discussions and presentations.
  - ⇒ 1.8.3.B Locate information using appropriate sources and strategies (internet, books, etc...)
- **Geography Standards:**
  - ⇒ 7.1.3.A Describe and locate places and regions (in the United States/world)
  - ⇒ 7.2.3.A Identify the physical characteristics of places and regions (weather and climate, vegetation and animals of biomes)
  - ⇒ 7.4.3.B Identify the impacts of people on physical systems (ways humans change the local ecosystems)
- **Environment and Ecology Standards:**
  - ⇒ 4.3.4.A Know that plants, animals and humans are dependent on air and water.
  - ⇒ 4.6.4.A Understand that living things are dependent on nonliving things in the environment for survival
    - Identify a simple ecosystem and its living and nonliving components
    - Identify the animals that live in the ecosystems
  - ⇒ 4.7.4.B Know that adaptations are important for survival
- **Science Standards**
  - ⇒ 3.3.4.A Know the similarities and differences of living things (external characteristics and environmental habitats, describe basic needs of plants and animals)
- **Math Standards:**
  - ⇒ 2.3.3.A Compare measureable characteristics of different objects on the same dimensions (area and perimeter)
  - ⇒ 2.4.3.B – Use measurements in everyday situations.
- **Technology Standards:**
  - ⇒ 3.7.3.D Use basic computer software (word processing skills, produce documents with text and graphics)
  - ⇒ 3.7.3.E Develop knowledge of basic communications systems by applying a web browser and using online searches to answer age appropriate questions

### C. Objectives:

- *Students will be able to:*
  - Compare and contrast the different biomes.
  - Cooperate with small group members.
  - Share ideas in a courteous and acceptable manner with small and large groups of students.
  - Identify the location and the basic characteristics (climate, plants, animals, etc...) for one of the seven biomes of the world.
  - Research, using designated Internet sites and books, information about the selected biome and at least one animal native to the biome.
  - Write a detailed description of how to take care of the animal in an ecosystem (using the associated survival adaptations as a guide)
  - Create a multi-zoned zoo plot for chosen biome using correct perimeter and area given.
  - Write a persuasive paper stating an opinion about zoo captivity.

### D. Essential Questions:

- How would the animals' lives be different in the zoo than in the wild?
- How would their lives be the same?
- How can we create the most natural type of zoo?
- Is there a zoo that can be exactly like the wild?
- Is it better for an animal to live in a zoo or in the wild?

### E. Differentiation Plan:

- Once the initiating activity is completed, students will have the opportunity to select the top three biomes that interest them. The teacher will select the groups and they will be based on these interest surveys. The most challenging biome (introduced as a challenge when completing the interest survey) will be comprised of high-level students. The rest of the groups will be mixed ability levels (HIGH, MIDDLE, LOW). These levels have been decided by the teacher and based on previous science test results, reading ability and overall achievement in classroom activities.
- After the project has begun, differentiation will be on a group-to-group basis based on whether students need extension activities or other modifications. ***See below for SOME extensions and modifications.***
  - EXTENSION ACTIVITIES (given at various parts of the assignment):
    - Select a new animal to research.
    - Find numerous pictures of a biome and compare the pictures. What are some ways the same biome can look both the same and different?
    - Create a new form of animal that you feel would be able to survive in your biome. Make sure that the animal has the necessary characteristics to survive there.
  - MODIFIED ACTIVITIES (given at various parts of the unit):
    - Highlight certain text for students who struggle finding information.
    - Select animals for students to research.
    - Set up a fill-in-the-blank form with the information the student will have to find on either the ecosystem or the animal.
    - Read aloud text to struggling students.
    - Pair students together to complete the assignment.

## Step 2 – Assessment Evidence (summative checks for learning)

### A. Performance Task (*What will students do to demonstrate their learning?*)

- **As a group students will:**
  - Create a detailed zoo plan graded with a rubric.
- **Individually students will:**
  - Complete a biome worksheet answering necessary questions about the biome.
  - Complete an animal worksheet demonstrating valuable information learned about a specific animal in the biome.
  - Use the Internet and computer systems efficiently and effectively.
  - Write a detailed description the animal care directions with 90% accuracy based on the rubric.
  - Write a persuasive essay with a clear opinion and 3 supporting details.

### B. Performance Criteria (*How good is good enough?*)

- Students' zoo designs will be assessed based on the attached rubric. The designs must be logical, show characteristics of the biome, include at least 3 animals from the biome and display an understanding for a zoo format.
- Students' biome and animal worksheets will be looked at for completeness and accuracy. Students will be asked to tell another student about their biome and animal as an oral assessment of information learned.
- Students will be informally assessed on Internet and computer systems use based on a checklist.
- Students will write a persuasive essay with 85% accuracy to be graded with a rubric.

### C. Other Evidence

- Students will write in a journal after each step of the process about what they have learned, what else they would want to find out, is the information interesting, etc...
- Work cooperatively in groups based on teacher observation and student evaluations of group and self.

## Step 3 – Active Learning Plans (detailed enough for another teacher to follow)

### A. Steps for Students

#### ***Initiating Activity:***

- **Lesson 1 (One 45 minute lesson):** Students will watch a brief video with pictures from each biome. The second time the video is watched, students will write down some characteristics of each biome on the designated sheet. The students will then meet with group members of mixed ability levels to add more to their lists. In these groups, the students will try to match the name of each biome to its pictures based on prior knowledge and information found in the pictures. Students will compare and contrast the biomes based on observations. When finished, students will independently decide which of the biomes they would like to find more information about. In their "Biome Journal", students will think about and answer the essential questions to the best of their ability. This will be then be re-looked at when the unit is complete to compare new ideas with old.

**Student-Centered Learning Steps:**

- **Lesson 2 (Three 45 minute lessons):** After looking at the top three choices of each student, the teacher will divide the students into groups based on interest (see “Differentiation Plan” for further information on group differentiation). In their groups, the student will research their assigned biome using the Internet resources (specified in the WebQuest) and a selection of book and articles provided by the teacher (titles may vary). Each student will complete a worksheet with specific information about the biome. The worksheet will be looked at for completeness and accuracy. In closing, the students will write in their journal about what they learned and focus on one of the essential questions: *“How can we create the most natural type of zoo?”*.
- **Lesson 3 (Three 45 minute lessons):** Once the biome information is complete, each student will choose one animal that can be found in the group’s biome to find more information on. Each student will need to complete a worksheet using the Internet resources provided on the WebQuest. Once this information is found, the students must search on Google Images for a picture of the animal researched. The worksheet will be collected and assessed based on accuracy and completeness. In closing, the students will respond in their journal about one of the essential questions: *“How would animals lives be the same in the zoo as in the wild?”*
- **Lesson 4 (Three 45 minute lessons):** The students will first look at a set of directions on how to take care of a dog, a cat and a bird and identify the similarities (necessities) in each set of directions. Using the information gathered on the animal worksheet, students will create a detailed set of directions about how to take care of the animal in the zoo, making sure to include the necessities and dangers for the animal. If students are finished early, these may be word-processed. In closing, the students will write in their journal about one essential question: *“How would the animals lives be different in the zoo than in the wild?”*

**Culminating Performance:**

- **Lesson 5 (Three 45 minute lessons):** Students will look at maps of various zoos and take a virtual tour of the St. Louis Zoo to get some ideas of a zoo layout and categories. They will then meet with their biome specialist group to decide on the best way to set up their portion of the zoo. Each group will be given a piece of graph paper with a certain perimeter and area that their section must take up. On the graph paper, draw the layout with smaller sections laid out for the different animals in the biome. Once the design is finished, add pictures of your animals and the plants that would be found in the biome. This design will be graded on a rubric (attached). In closing, students will write in their journal explaining why they chose to set up their zoo section in this way.

**Closure:**

- **Lesson 6: (Two 45 minute lessons):** Students will learn about a persuasive essay and look at many examples. They will write a persuasive essay answering the essential question: Is it better for animals to be in the wild or in a zoo? They will need to include three relevant reasons about why they feel their opinion is better. This paper will be graded on a rubric.

## **B. Notes for Teacher**

- Copy the designated materials at the beginning of the unit (all worksheets, journals, etc...)
- Recheck the websites and links in the PowerPoint to make sure they are all still live sites)
- Check out various books from the school library (or local public libraries) for students to complete research.
- Gather the materials before starting each lesson.
- Reserve the computer lab on various days throughout the week.
- Call parent volunteers to help with computer use throughout the lab to make work time efficient.
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## **C. Materials to have ready**

- Biome Journal (entire unit)
- Slideshow of biomes (initiating activity)
- Biome information recording sheet/comparing sheet (initiating activity)
- Biome cards (initiating activity)
- Internet (lessons 2, 3, and 4)
- Various books on biomes and animals (lessons 2 and 3)
- Worksheet on group biome (lesson 2)
- Worksheet on animal in biome (lesson 3)
- Set of directions about animal care (lesson 4)
- Maps of various zoos (culminating activity)
- Graph paper (culminating activity)
- Persuasive paper examples (closure)

## **D. Resources** (where I got my ideas)

Shepard Software. Kid's Corner: *Animal Classification*. From [http://www.sheppardsoftware.com/content/animals/kidscorner/classification/kc\\_class\\_again.htm](http://www.sheppardsoftware.com/content/animals/kidscorner/classification/kc_class_again.htm)

Henry Vilas Park Zoological Society. (2009). *Visit the Zoo*. From [http://www.vilaszoo.org/visit/index.php?category\\_id=1993](http://www.vilaszoo.org/visit/index.php?category_id=1993).

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Schaffner, B., & Robinson, K. (2009). *Blue Planet Biomes*. From <http://www.blueplanetbiomes.org/index.htm>.

St. Francis Intermediate School. (1999). *Amazing Animals of the World*. From <http://library.thinkquest.org/5053/>

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Regents of the University of California. (1994-2009). *The World's Biomes*. Retrieved April 13, 2009 from <http://www.ucmp.berkeley.edu/exhibits/biomes/index.php>.

Cyber Zoo. Retrieved April 13, 2009 from <http://lsb.syr.edu/projects/cyberzoo/index.html>

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*How To Take Care of a Parakeet*. Retrieved April 13, 2009 from WikiHow: <http://www.wikihow.com/Take-Care-of-a-Parakeet>.

Tomlinson, C.A., & McTighe, J. (2006). *Integrating Understanding By Design & Differentiated Instruction: Connecting Content and Kids*. ASCD.

Recesso, A., & Orrill, C. (2008). *Integrating Technology into Teaching: The Technology and Learning Continuum*. New York: Houghton Mifflin.

#### Step 4 – Reflection

- What happened during my lesson (what did the students and I say and do)?
- How effective was my lesson design and teaching?
- What evidence can I show about my students' learning (e.g., student work)?
- How effective was my assessment plan for getting information about my students' learning?
- How did I do in meeting my desired results for this lesson?
- What are my next steps to improve student learning?
- How did technology enhance the student learning?